

Pulsar *EXtreme* 2200C / 3200C

Installation and user manual



THE UNINTERRUPTIBLE POWER PROVIDER

MGE
UPS SYSTEMS

Introduction

Thank you for selecting an MGE UPS SYSTEMS product to protect your electrical equipment.

The **Pulsar EXtreme C** range has been designed with the utmost care. We recommend that you take the time to read this manual to take full advantage of the many features of your UPS.

MGE UPS SYSTEMS pays great attention to the environmental impact of its products. Measures that have made **Pulsar EXtreme C** a reference in environmental protection include:

- ▶ the eco-design approach used in product developmen,
- ▶ recycling of **Pulsar EXtreme C** at the end of its service life.

To discover the entire range of MGE UPS SYSTEMS products and the options available for the **Pulsar EXtreme C** range, we invite you to visit our web site at **www.mgeups.com** or contact your MGE UPS SYSTEMS representative.

Foreword

Using this document

Information may be found primarily by consulting:

- ▶ the contents,
- ▶ the index.

Pictograms



Important instructions that must always be followed.



Information, advice, help.



Visual indication.



Action.



Audio indication.

In the illustrations on the following pages, the symbols below are used:



LED off.



LED on.



LED flashing.

- 1. **Presentation**
 - 1.1 **Standard positions** 7
 - Rack position 7
 - Tower position 7
 - 1.2 **Back** 8
 - Pulsar **EXtreme 2200C** 8
 - Pulsar **EXtreme 3200C** 8
 - Pulsar **EXB 2200 / 3200** 8
 - 1.3 **Control panel** 9
- 2. **Installation**
 - 2.1 **Unpacking and checks** 10
 - 2.2 **Installation in rack position** 11
 - 2.3 **Installation in tower position** 12
 - 2.4 **Connection to the RS232 or USB communications port (optional)** 13
 - 2.5 **Installation of the communications-card option** 13
 - 2.6 **Connections** 14
- 3. **operation**
 - 3.1 **Start-up** 15
 - 3.2 **Bargraph indications** 15
 - 3.3 **Operation on battery power (following failure of AC input power)** 16
 - Transfer to battery power 16
 - Threshold for the low-battery warning 16
 - End of backup time 16
 - 3.4 **Personalisation (optional)** 17
 - Function 17
 - "ON / OFF conditions" tab 17
 - "Battery" tab 17
 - "Output" tab 18
 - "Bypass" tab 18
 - 3.5 **UPS Shutdown** 18
 - 3.6 **UPS remote power off** 19

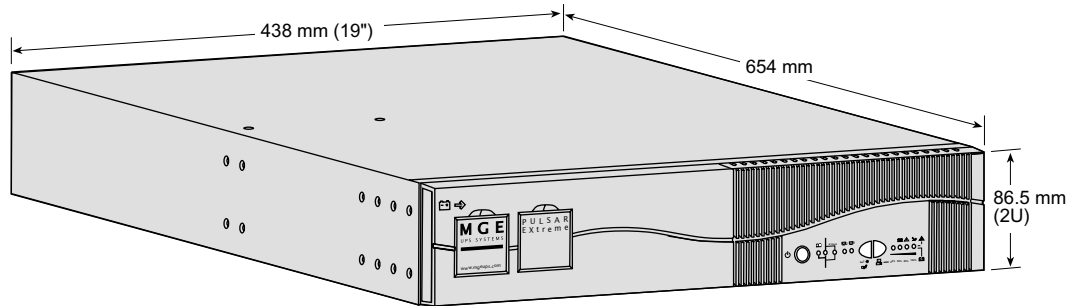
Contents

- 4. Maintenance
 - 4.1 Troubleshooting 20
 - 4.2 Replacement of the battery module 22
- 5. Environment 24
- 6. Appendices
 - 6.1 Technical characteristics 25
 - 6.2 Glossary 26
 - 6.3 Index 27

1. Presentation

1.1 Standard positions

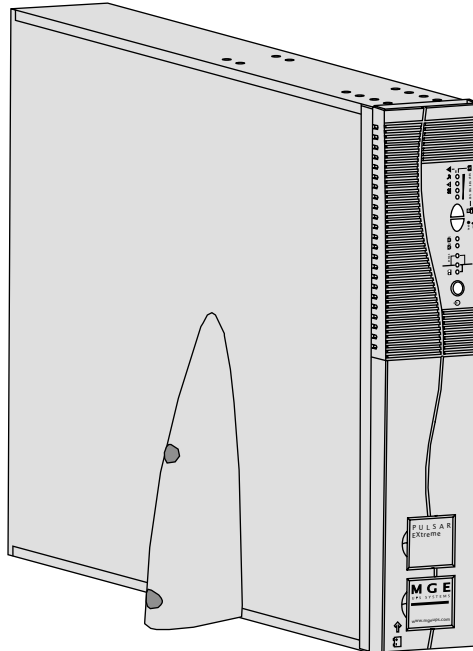
Rack position



Pulsar EXtreme 2200C: 35.3 Kg

Pulsar EXtreme 3200C: 35.7 Kg

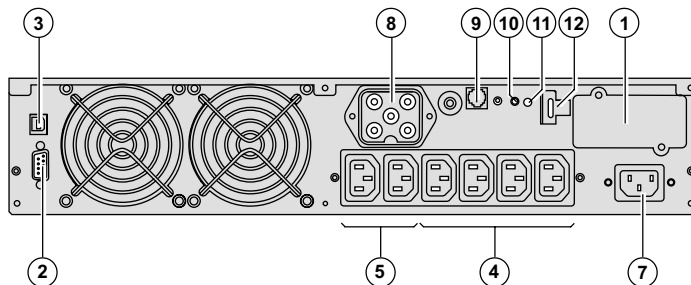
Tower position



1. Presentation

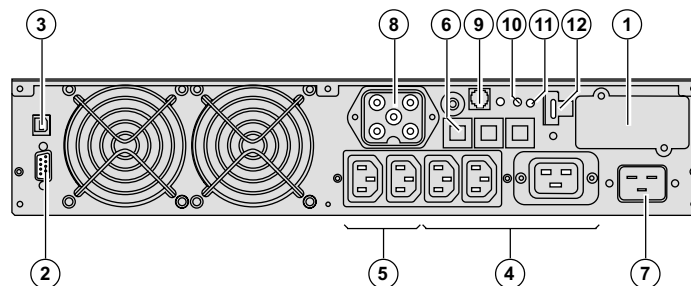
1.2 Back

Pulsar EXtreme 2200C



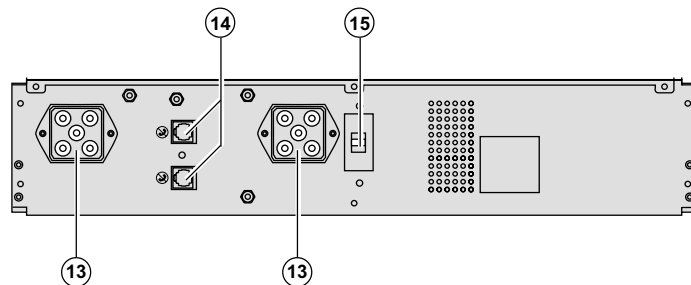
- ① Slot for communications-card option.
- ② RS232 communications port.
- ③ USB communications port.
- ④ Four outlets for direct connection of protected equipment.
- ⑤ Two programmable outlets (outlet 1 and 2).
- ⑥ Output circuit breakers.
- ⑦ Socket for connection to AC-power source.

Pulsar EXtreme 3200C



- ⑧ Connector for an additional battery module.
- ⑨ Connector for automatic detection of an additional battery module.
- ⑩ Pushbutton to test phase/neutral inversion of AC-power source.

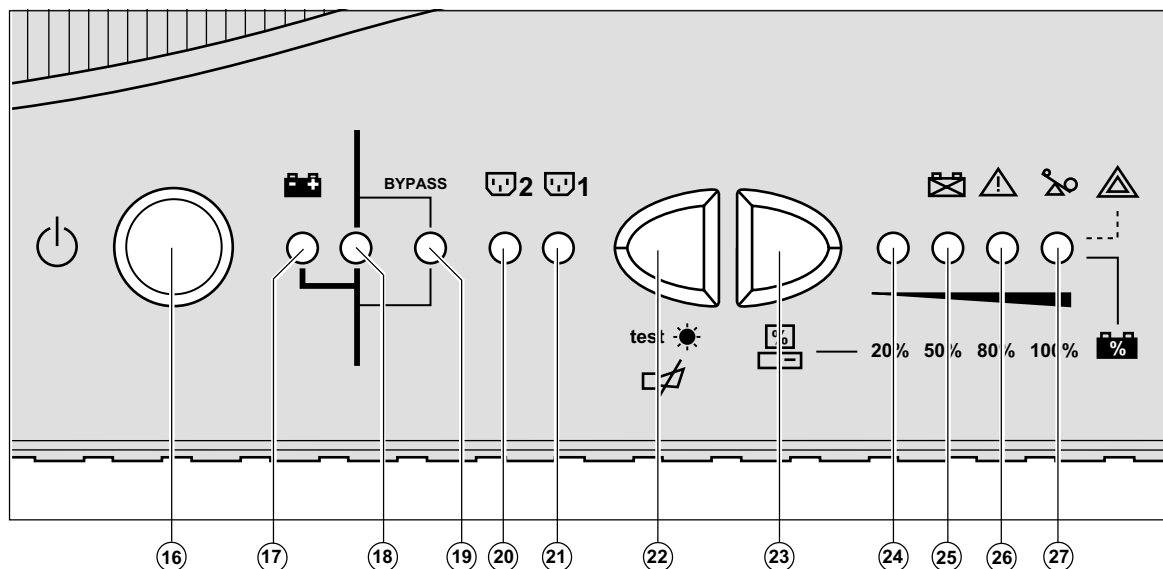
Pulsar EXB 2200 / 3200



- ⑪ LED indicating phase/neutral inversion of AC-power source.
- ⑫ Connector for remote power off.
- ⑬ Battery module connectors (to the UPS or to other battery modules).
- ⑭ Connectors for automatic detection of additional battery modules.
- ⑮ Circuit breaker for battery ON/OFF and protection.

1. Presentation

1.3 Control panel





①⑥ ON / OFF.



①⑦ Operation on battery power.

①⑧ Operation in ON-LINE mode (backup power available).

①⑨ Operation on bypass (no backup power available).

②① Status of programmable outlet 2:  Supplied with power.

②② Status of programmable outlet 1:  Status change in progress.

②③  Lamp test or buzzer OFF.
 Forced transfer to bypass and back by pressing button 3 times in less than 5 seconds.

②④ Hold down to display percent load:

Press simultaneously at least 3 seconds to reset the "End of battery life" alarm.



Alarms



% battery remaining



% load

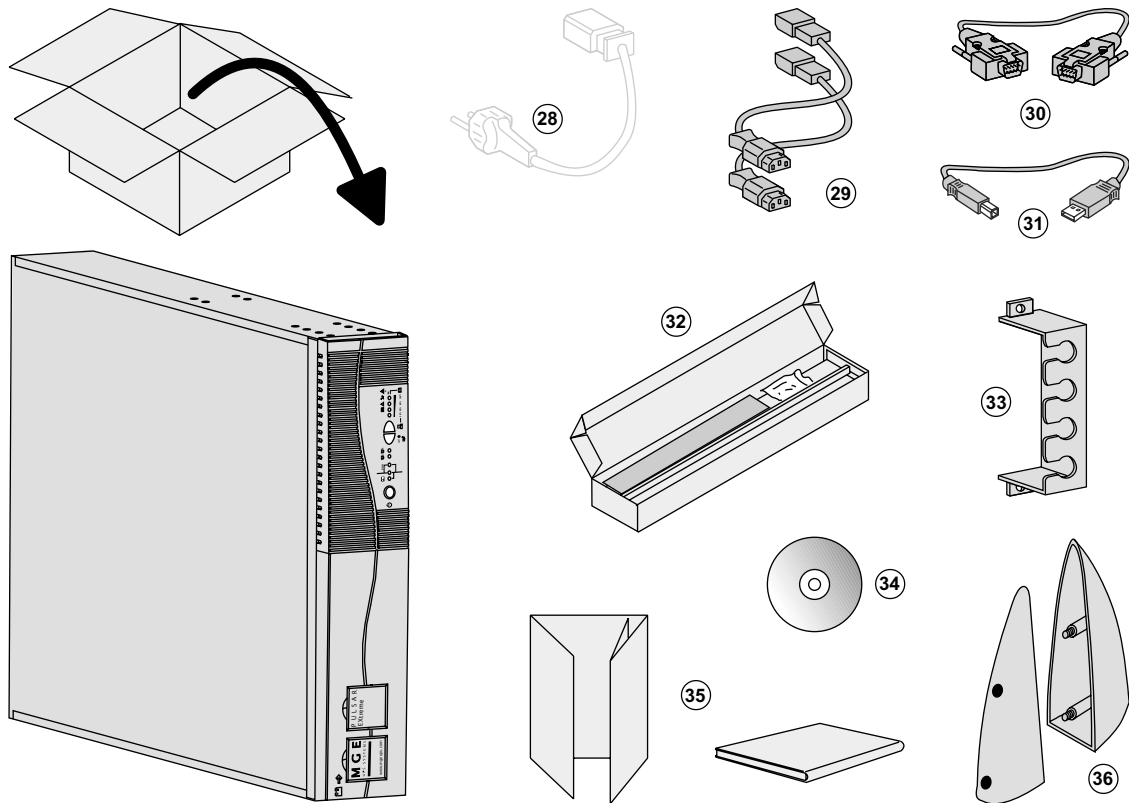
| | | |
|----------------------|------|------|
| ②⑦ UPS overload | 100% | 100% |
| ②⑥ Electronics fault | 80% | 80% |
| ②⑤ Battery fault * | 50% | 50% |
| ②④ | 20% | 20% |

(*) :  flashing LED + buzzer: battery fault (battery must be replaced).

 flashing LED + long buzzer (once per hour): theoretical end of battery life (replacement recommended).

2. Installation

2.1 Unpacking and parts check

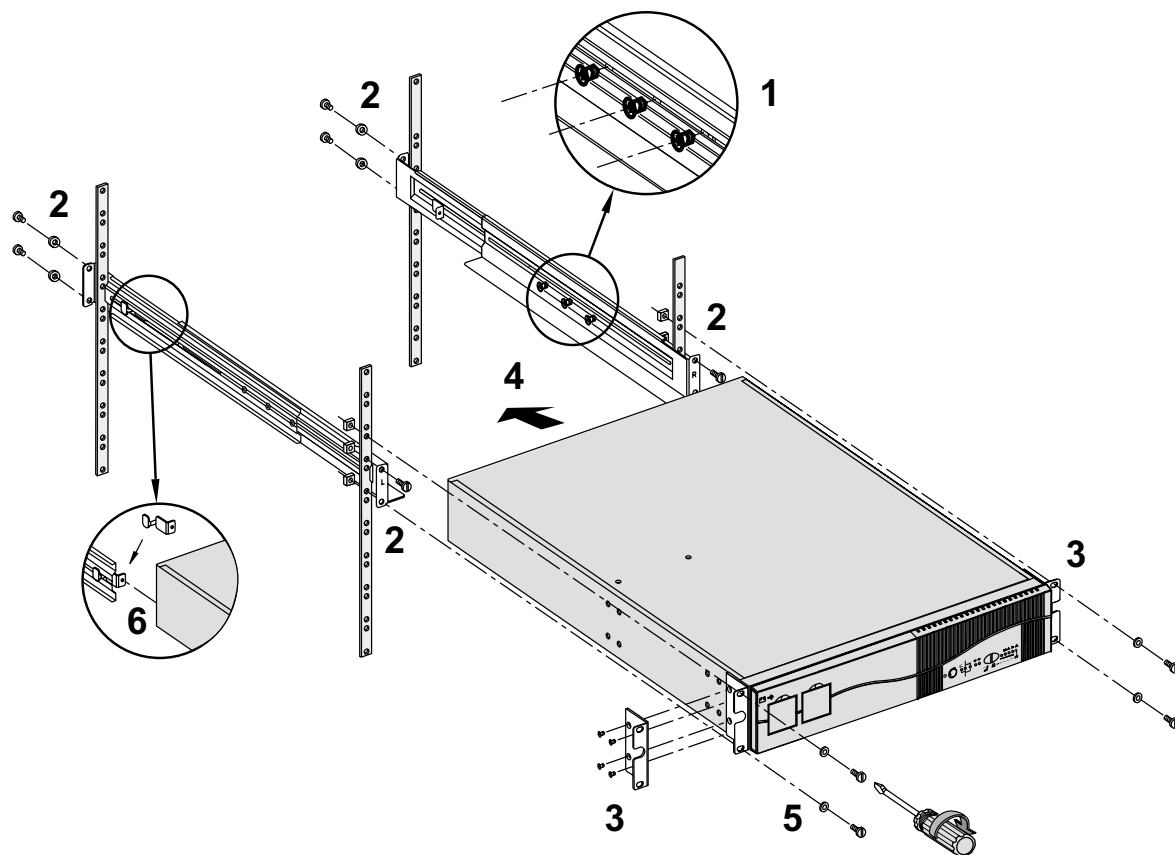


- ②⑧ Cord for connection to the AC-power source for **Pulsar EXTreme 3200C** versions only (for the **Pulsar EXTreme 2200C** version, use the power cord of the protected equipment).
- ②⑨ Two cords for connection of the protected equipment.
- ③① RS232 communications cable.
- ③② USB communications cable.
- ③③ Telescopic rails for mounting in 19" bay with mounting hardware.
- ③④ Securing system for equipment power cords.
- ③⑤ CD-ROM with the **Solution-Pac** and **UPS Driver** software.
- ③⑥ Product documentation.
- ③⑦ Two supports for the upright position.

2. Installation

2.2 Installation in rack position

Follow steps 1 to 6 for rack mounting of the UPS on the rails.



The rails and the necessary mounting hardware are supplied by MGE UPS SYSTEMS.

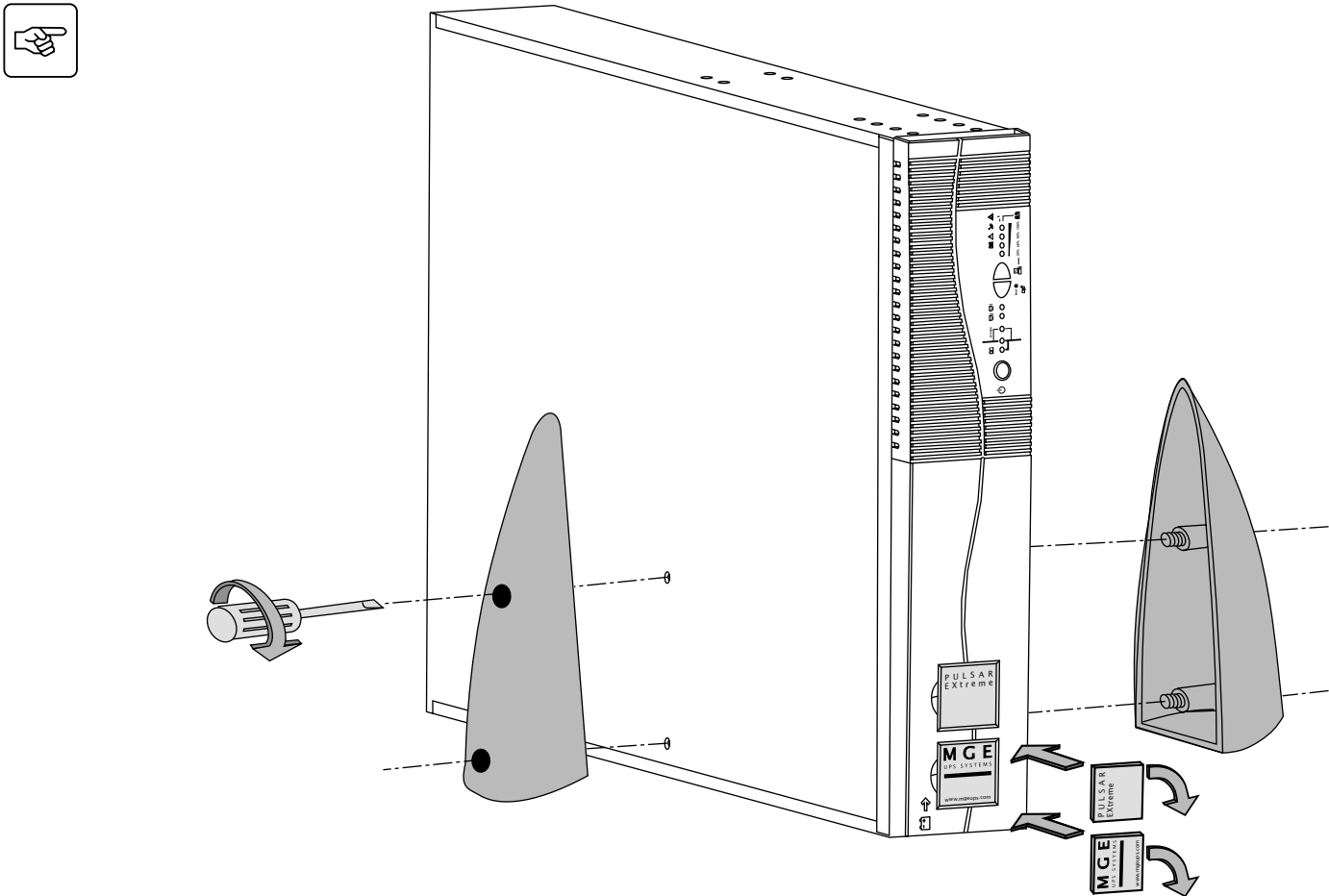


Note for step 3: It is possible to adjust the positions of the front brackets.

2. Installation

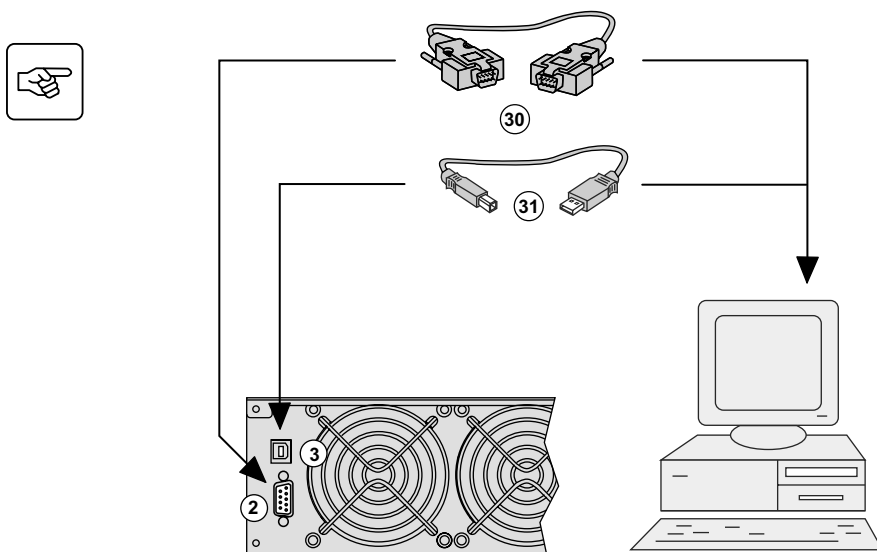
2.3 Installation in tower position

Connect the two supports for the upright position.



2. Installation

2.4 Connection to the RS232 or USB communications port (optional)



1 - Connect the RS232 (30) or USB (31) communications cable to the serial port or the USB port on the computer.

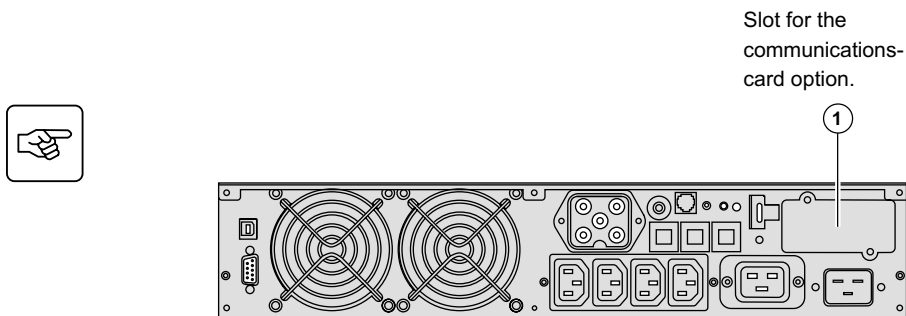
2 - Connect the other end of the communications cable (30) or (31) to the RS232 (2) or USB (3) communications port on the UPS.

The UPS can now communicate with all MGE UPS SYSTEMS supervision, set-up or safety software.



The RS232 and USB communications ports cannot operate simultaneously.

2.5 Installation of the communications-card option



Slot for the communications-card option.

It is not necessary to shut down the UPS to install the communications card:

1 - Remove the slot (1) cover secured by two screws.

2 - Insert the card in the slot.

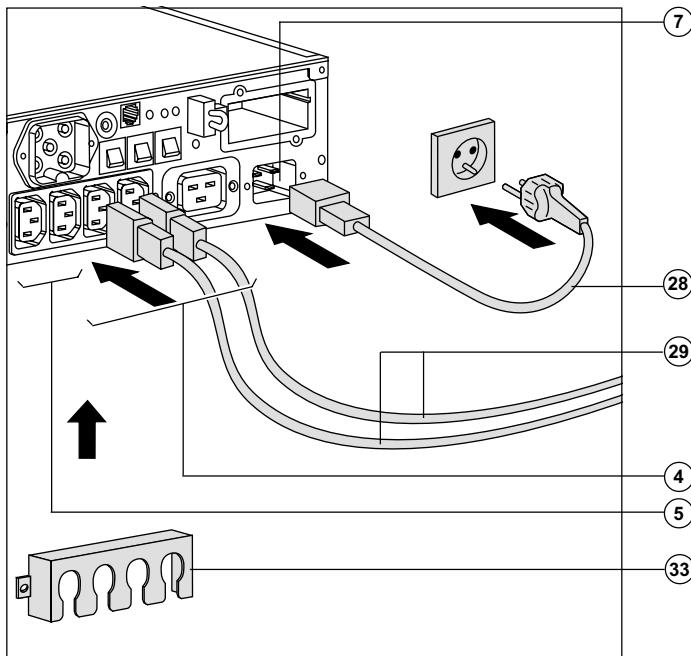
3 - Secure the card with the two screws.

2. Installation

2.6 Connections



Check that the indications on the rating plate on the back of the UPS correspond to your AC-power system and to the actual electrical consumption of all the equipment to be connected to the UPS.



1 - Remove the power cord supplying the equipment to be protected.

2 - **Pulsar EXtreme 2200C**: connect the power cord ⁽¹⁾ just removed from the equipment to the AC-power socket (7) and then to the AC-power wall outlet.

- **Pulsar EXtreme 3200C**: connect the supplied power cord (28) (250 V, 16 A) to the AC-power socket (7) and then to the AC-power wall outlet.

3 - Connect the protected equipment to the UPS using the two cords (29). It is advised to connect priority loads to the four outlets (4) and any non-priority loads to the two programmable outlets (5) (If the UPS is connected to a computer running MGE UPS SYSTEMS communications software, it is possible to program the interruption of power to the two programmable outlets (5) during operation on battery power, thus reserving backup power for the priority loads).

4 - Lock the connections using the securing system (33).

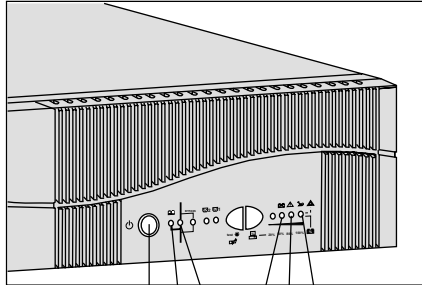
i As soon as the UPS is energised, the battery begins charging. Eight hours are required to charge to the full rated backup time.

(1) Make sure the cord has the following characteristics: 250 V, 10 A, cross-sectional area 1 mm², type HO5.

3. Operation

3.1 Start-up

The protected equipment connected to the UPS can be energised, whether AC input power is available or not.



16 17 18 25 26 27



Caution: the AC input power source must be present when energising for the first time.

Press the ON / OFF button (16).

The buzzer beeps and all the LEDs go ON.

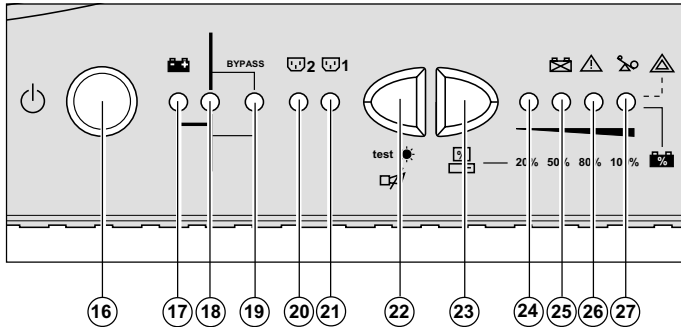
The buzzer beeps twice, then:

- If AC input power is available, LED (18) goes ON, indicating operation in ON-LINE mode.
- If AC input power is not available and the UPS is configured for automatic restart mode, the buzzer beeps three times and LED (17) goes ON, signalling operation on battery power.

All connected equipment is energised.

If LEDs (17) or (18) do not go ON or if LEDs (25) to (27) flash, there is a fault (see section 4.1).

3.2 Bargraph indications



16 17 18 19 20 21 22 23 24 25 26 27

LEDs (24) to (27) provide three different indications:

- 1 - Remaining backup time in percent (during normal operation).
- 2 - Percent load drawn by the protected equipment, when button (23) is pressed.
- 3 - Operating faults (flashing LED and beeps):

- (27) Overload.
- (26) UPS fault.
- (25) Battery fault or end-of-life warning.

Status LEDs (20) and (21) for programmable outlets 1 and 2:

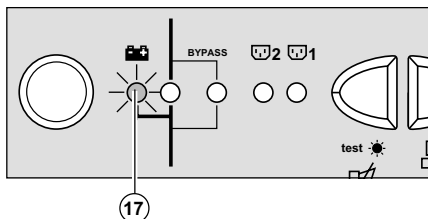
- LEDs OFF: the outlets are not supplied with power.
- LEDs flashing: status change in progress.
- LEDs ON: the outlets are supplied with power.

Outlets 1 and 2 can be remotely programmed and controlled. They may be used for sequential start-up of the protected applications, shedding of non-priority applications during operation on battery power, and priority management at the end of battery backup time to reserve the longest possible backup time for the most sensitive applications. These outlets are programmed using **Solution Pac** software.

3. Operation

3.3 Operation on battery power (following failure of AC input power)

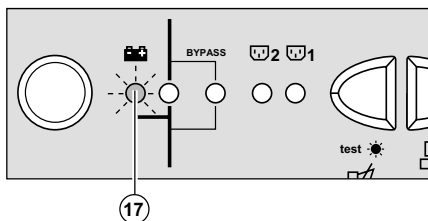
Transfer to battery power



The AC-power source is outside tolerances, LED ⑰ is ON, the buzzer beeps three times.

The equipment connected to the UPS is supplied by the battery.

Threshold for the low-battery warning



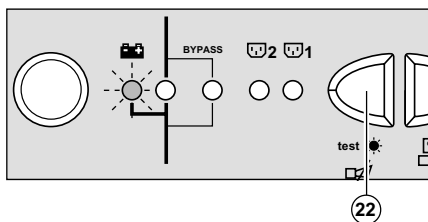
The low-battery warning threshold can be set by the user, with the **UPS Driver** software (see section 3.4).

LED ⑰ flashes.

The buzzer beeps every three seconds.

There is very little remaining battery backup time. Close all applications because UPS automatic shutdown is imminent.

End of backup time



The buzzer sounds continuously.

Press button ②② to turn the buzzer OFF.

The equipment is no longer supplied with power.



Return of AC input power:

If, in spite of the return of AC input power, the UPS does not restart, check that the automatic-restart function (activated by return of AC input power) has not been disabled (see section 3.4).

3.4 Personalisation (optional)

Function

Personalisation parameters can be set and modified using the **UPS Driver** software installed on a computer that is connected to the UPS (see section 2.4 Connection to the RS232 communications port).



Check that the RS232 (30) cable is properly connected.

UPS Driver installation:



- 1 - Insert the Solution-Pac CD-ROM containing the **UPS Driver** software in the computer drive.
- 2 - Open the Windows file manager or explorer and select the CD drive.
- 3 - Run "\\Emb\Config\UPSDRVxx.exe", where xx is the software version.

It is also possible to download the **UPS Driver** software from the www.mgeups.com site.

Once the **UPS Driver** software has been installed, the parameters listed below can be modified.

"ON / OFF conditions" tab

| Personalisable function | Default setting | Options |
|----------------------------|-----------------|----------|
| Automatic start | Enabled | Disabled |
| Cold start (battery power) | Enabled | Disabled |
| Forced shutdown | Enabled | Disabled |
| Sleep mode | Disabled | Enabled |
| UPS ON / OFF via software | Enabled | Disabled |

"Battery" tab

| Personalisable function | Default setting | Options |
|------------------------------------|-----------------------------------|--|
| Automatic "Battery test" intervals | Every weeks | Once a day Once a month No test |
| "Low-battery warning" threshold | 20% remaining battery backup time | From 0% to 100% of the remaining battery backup time |
| Protection against deep discharges | Enabled | Disabled |

3. Operation

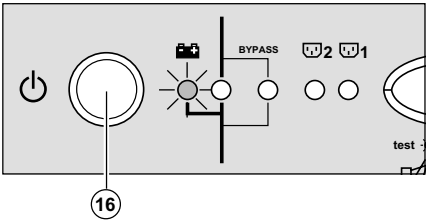
"Output" tab

| Personalisable function | Default setting | Options |
|---|-----------------|---------------------------------------|
| Rated UPS voltage | 230 V | 200 V - 208 V - 220 V - 240 V - 250 V |
| Frequency mode | Autoselect | Converter |
| Rated UPS frequency | F = 50 Hz | 60 Hz |
| UPS tolerance for AC-power source frequency | F ± 5% | F ± 1% to ± 10%, in 1% steps |
| Overload alarm threshold | 110% | 0 to 110%, in 10% steps |
| UPS restart following short-circuit | Disabled | Enabled (click to add check) |

"Bypass" tab

| Personalisable function | Default setting | Options |
|--|-----------------|----------------------------------|
| Transfer to bypass if overload | Enabled | Disabled (click to remove check) |
| Transfer to bypass following a fault, whatever the conditions on the AC-power source | Disabled | Enabled (click to add check) |

3.5 UPS shutdown



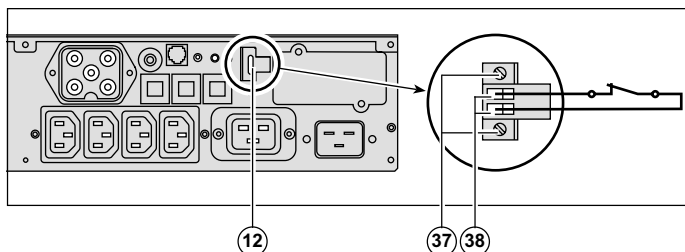
Press button **(16)** (return to the OFF position).

The connected equipment is no longer supplied with power.

3.6 UPS remote power off

Pulsar EXtreme C is equipped with a remote power off function (RPO) that can cut power to all the devices connected to the UPS using a remote user-operated contact.

The function is implemented by opening a contact connected to the two terminals of connector **12** on the back of the UPS.



Installation and test of the remote power off function



- 1 - Check that the UPS is shut off and disconnected to the AC-power source.
- 2 - Remove the RPO connector **12** by undoing the screws **37**.
- 3 - Connect an insulated dry contact (NC, 60 V DC, 30 V AC max., 20 mA max., cable size 0.75 mm²) to the two terminals of the RPO connector **38**.
- 4 - Put the RPO connector **12** back in place on the back of the UPS.
- 5 - Connect the UPS to the AC-power source and restart it as indicated previously.
- 6 - Activate the RPO external contact to test the function.
- 7 - To return to normal operation, deactivate the RPO external contact and restart the UPS using button **16** (press OFF, then ON).

4. Maintenance

4.1 Troubleshooting

If any of LEDs 25, 26 or 27 flash, there is a operating anomaly or an alarm.




If a LED flashes, the bargraph data is no longer displayed.



| Indication | Diagnostic | Correction |
|---|---|---|
| LED 27 flashes and the buzzer beeps. | UPS overload. Overload is too long or too high. ► If AC power is present and within tolerances, the UPS goes to bypass mode (supply directly by the AC-power source). LED 19 flashes. The buzzer beeps every seconds. ► If AC power is not present or not within tolerances, the connected applications are no longer supplied. The buzzer sounds continuously. | Check the power drawn by the equipment and disconnect any non-priority devices. |
| LED 25 flashes and the buzzer beeps. | A battery fault was detected during the automatic battery test. | ► Check that the battery connector is fully pushed in. ► Replace battery module (see the Maintenance section). |
| LED 25 flashes and the buzzer emits a long beep once per hour. | The battery has reached the theoretical end of its service life. | ► Reset the alarm by pressing buttons 22 and 23 simultaneously for 3 seconds. ► It is advised to replace the battery. See the section on maintenance. |
| The yellow LED 24 flashes, the red indicator light 11 behind the UPS comes on and the buzzer sounds continuously. | The function for monitoring the phase and neutral position of your electrical network has detected a reversal. | Directly earthed neutral type networks: to correct cabling, unplug and turn the network socket, of the DIN-SCHUKO type, by 180 degrees or contact an electrician to modify your electrical network. For all other network types, deactivate the detection function (this function is only operational for directly earthed neutral electrical networks): Press for at least 5 seconds the pushbutton 10 behind the UPS (UPS stopped and connected to the network for less than 30 minutes). |

4. Maintenance



| Indication | Signification | Correction |
|--|--|--|
| The outlets are not supplied with power, even though button (16) is ON (version 3200C only). | One of the protection circuit breakers (6) for the outlets on the back of the UPS is open. | <ul style="list-style-type: none"> ► Check that there is not a short-circuit on the outlets. ► Eliminate any overloads on the outlets by modifying the distribution of devices on the outlets. ► Restart the UPS. |
| LED (26) flashes and the buzzer sounds continuously. | <p>UPS electronics have detected a UPS fault. Depending on the UPS personalisation parameters (see section 3.4), there are two possibilities:</p> <ul style="list-style-type: none"> ► the equipment connected to the UPS continues to be supplied, but directly from the AC-power source (via the automatic bypass (LED (19) ON); ► the connected equipment is no longer supplied. <div>  <p>The equipment connected to the UPS is no longer protected.</p> </div> | Call the after-sales support department. |

4. Maintenance

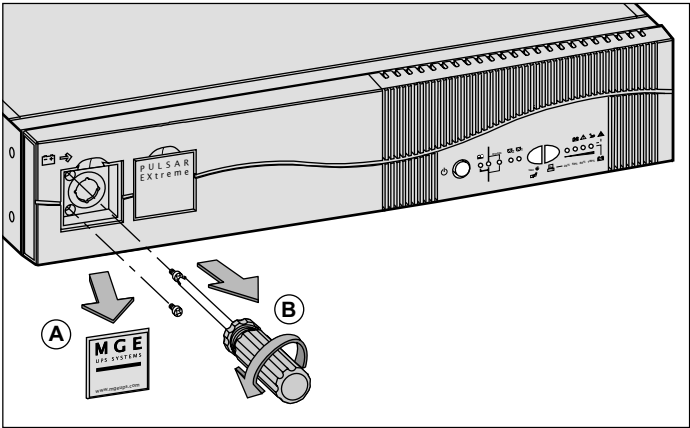
4.2 Replacement of the battery module

Safety rules:

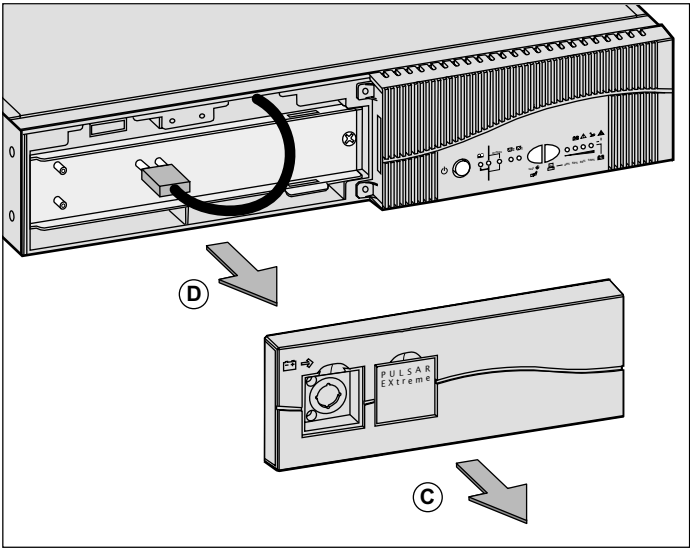
Batteries constitute a danger (electrical shock, burns). The short-circuit current may be very high. Precautions must be taken for all handling:

- remove all watches, rings, bracelets and any other metal objects;
- use tools with insulated handles.

Removal of battery module

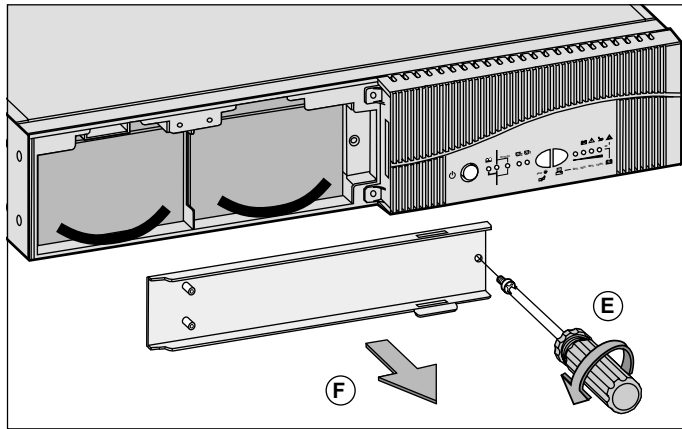


- (A) - Slide a finger in the slot to remove the MGE UPS SYSTEMS logo from the front of the UPS.
- (B) - Remove the two screws.



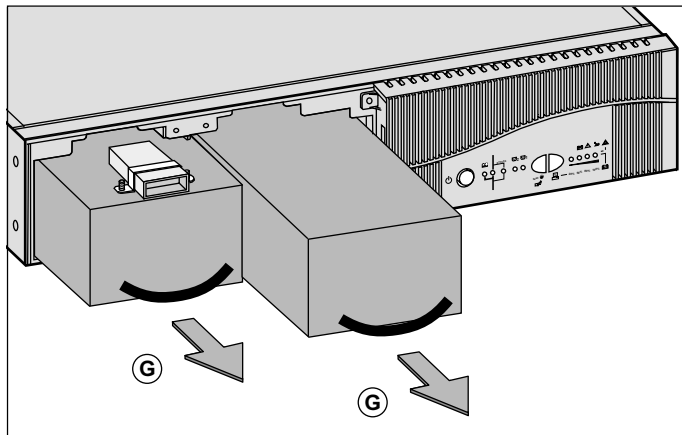
- (C) - Remove the left side of the front panel.
- (D) - Remove the connector.

4. Maintenance



Ⓔ - Remove the screws for the battery cover.

Ⓕ - Remove the cover.



Ⓖ - Remove the battery units and replace them.

Reinstallation of the battery module

Carry out the above operation in reverse order.



► To maintain an identical level of performance and safety, use a battery module identical to that previously mounted in the UPS.

► Press the two parts of the battery connector tightly together to ensure proper connection.

5. Environment

This product has been designed to respect the environment:

It does not contain CFCs or HCFCs.

UPS recycling at the end of service life:

MGE UPS SYSTEMS undertakes to recycle, by certified companies and in compliance with all applicable regulations, all UPS products recovered at the end of their service life (contact your MGE UPS SYSTEMS branch office).

Packing:

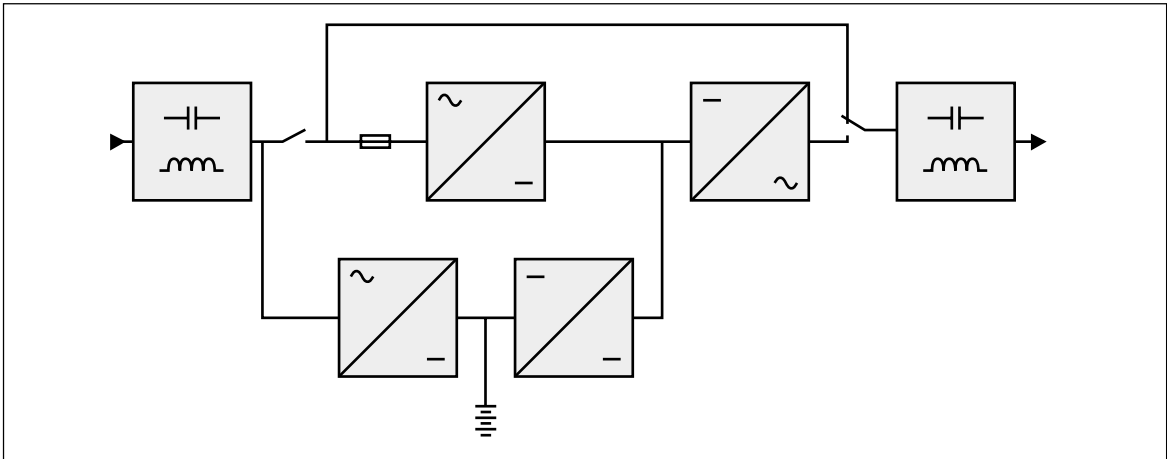
UPS packing materials must be recycled in compliance with all applicable regulations.

Warning:

This product contains lead-acid batteries. Lead is a dangerous substance for the environment if it is not properly recycled by specialised companies.

Web site: www.mgeups.com

6.1 Technical characteristics



| | Pulsar EXtreme 2200C | Pulsar EXtreme 3200C |
|--|---|--|
| Rating | 2200 VA / 1540 W | 3200 VA / 2080 W |
| AC input <ul style="list-style-type: none"> ► Voltage ► Frequency ► Power factor | Single phase, 120 V / 140 V / 160 V to 284 V ⁽¹⁾ 50/60 Hz (auto-selection) ≥ 0.95 | |
| Output <ul style="list-style-type: none"> ► Voltage ► Frequency ► Harmonic distortion ► Overload capacity | Single phase, 230 V ± 3% ⁽²⁾ 50/60 Hz ± 5% ⁽³⁾ < 4% for linear loads, < 6% for non-linear loads 110% continuous, 130% for 12 seconds, > 130% for 1.5 seconds | |
| Battery | 6 x 12 V - 7 Ah, sealed lead-acid, maintenance free | 6 x 12 V - 9 Ah, sealed lead-acid, maintenance free |
| Environment <ul style="list-style-type: none"> ► Noise level ► Operating temperature ► Relative humidity | < 50 dBA 0 to 40°C 20 to 90% (without condensation) | |
| Standards and certification <ul style="list-style-type: none"> ► Safety ► Performance ► EMC ► Marking | IEC/EN 62040-1-1, EN 60950-1 (RD) IEC/EN 62040-3 EN 50091-2/IEC 62040-2 class B IEC 61000-4-2/-3/-4/-6-8/-11, IEC 61000-3-2/-3 CE, TÜV/GS, UL, cUL, CB report | |

(1) Values indicated for 33%, 66% and 100% of UPS rated output.
 (2) Adjustable from 200 V to 250 V using **UPS Driver** software.
 (3) Frequency-converter mode can be set using the **UPS Driver** software.

6. Appendices

6.2 Glossary

| | |
|---|--|
| Authorised voltage range for transfer to bypass if fault or overload | Upper and lower voltage thresholds within which the UPS can operate on the automatic bypass in the event of a UPS fault or overload. |
| Automatic bypass | Automatic switch controlled by the UPS, used to connect the equipment directly to the AC-power source in the event of a UPS failure or an overload. |
| Automatic start following return of AC input power | This function automatically starts the UPS when AC input power returns following shutdown at the end of the battery backup time. It can be enabled or disabled. |
| Backup time | Time that the connected equipment can operate on battery power. |
| Bargraph | Device on the front panel indicating the percent remaining backup time or the percent load. |
| Battery test | Internal UPS test on battery status. |
| Dialog box | A window in a computer program displayed for selection by the user of various options and parameter settings. |
| Double conversion | The power supplied to the connected equipment is completely regenerated by continuous double conversion, i.e. the AC power from the AC-power source is rectified (AC - DC), then converted back (DC - AC) to AC power. |
| Equipment | Devices or systems connected to the UPS output. |
| Forced shutdown | Ten-second interruption in the supply of power to the connected equipment following a system shutdown, even if AC input power returns during the interruption period. |
| Percent load | Ratio between the power drawn by the connected equipment and the total power that the UPS can supply. |
| Personalisation | A number of UPS functions can be modified using the UPS Driver software to better meet the user's needs. |
| Programmable outlets | Outlets that can be automatically shed during operation on battery power (a shedding time delay may be programmed using Solution-Pac software). |
| Remote Power Off | External dry contact can be used to stop the unit, during an emergency situation for example. All power is removed from the load. |
| Start on battery power | This function makes it possible to energise the connected equipment even when AC input power is not available (operation exclusively on battery power). |
| UPS | Uninterruptible Power Supply. |
| UPS ON / OFF via software | It is possible to enable or disable use of UPS ON / OFF controls by the computer-system protection software. |

6.3 Index

A

Remote power off 19

Automatic bypass 9-18-20

Automatic start 17

B

Bargraph 9-15

Battery

 End of backup time 16

 Fault 9-15

 Low-battery warning 17

 Recycling 24

 Replacement 22-23

 Transfer to battery power 16

Buttons 8-9

Buzzer 15-16

Buzzer shutdown 9

C

Connection

 Additional battery module 8

 Communications card 13

 RS232 communications port 13

 USB communications port 13

Communication 8-13

D

Dimensions 7

E

Environment 2-24

Excessive ambient temperature 25

F

Forced shutdown 17

L

Lamp test 9

LEDs 8-9

O

ON LINE mode 9

Overload 9-18-20

P

Personnalisation 17

 Battery 17

 By-pass 18

 On/Off conditions 17

 Output 18

Programmable outlets 8-9-15

S

Sleep mode 17

 Automatic restart 17-18

Start-up 15

T

Technical characteristics 25

Transfer (forced) 9

U

UPS Driver 17

UPS fault 9-15-20-21

UPS ON / OFF via software 17

UPS shutdown 18

W

Web site 2

Weight 7

